

Application Number 10/770,113
Amendment in response to Office Action mailed November 21, 2007

REMARKS

This Amendment is responsive to the Office Action dated November 21, 2007. Applicant has amended claims 1, 3-5, 9, 10, 12, 14, 16-21, 30, 31, 33-37, 39, 40, 42 and 43. Applicant has also cancelled claims 2, 6-8, 11, 13, 23-29, 32, 38 and 41. Applicant additionally added new claims 44-61. Claims 1, 3-5, 9, 10, 12, 14-22, 30, 31, 33-37, 39, 40 and 42-61 are pending upon entry of this Amendment.

Claim Rejection Under 35 U.S.C. § 112

In the Office Action, the Examiner rejected claims 1-43 under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. In particular, the Examiner stated that the claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention. Applicant respectfully traverses the rejection.

In support of the rejection of the claims, the Examiner indicated that the Applicant failed to disclose any software or hardware components of the system with the any meaningful degree of specificity. In particular, the Examiner stated that the disclosure did not provide any meaningful degree of specificity to implement "service discovery protocol and automatic configuration." The Examiner further indicated that the Applicant's disclosure failed to provide what "the service discovery protocol and automatic configuration" are and how they perform these functions. Applicant disagrees with the Examiner's position regarding enablement.

Applicant's specification describes the claimed invention with sufficient detail to enable one skilled in the art to make and/or use the claimed invention. For example, FIG. 2 of Applicant's drawings illustrates a customer premise device that includes a control unit that implements the techniques of at least one aspect of the claimed invention. The description of FIG. 2 in the Applicant's specification indicates that the functions of the control unit of customer premise device may be implemented by executing instructions of a computer-readable medium with one or more processors, discrete hardware circuitry, firmware, software executing on a programmable processor, or a combination of any of the above.¹ Thus, Applicant's specification

¹ Applicant's specification, paragraph [0037].

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discloses software and/or hardware components of the system with a meaningful degree of specificity.

Applicant's disclosure also describes what "the service discovery protocol and automatic configuration" are and how those functions are performed. For example, Applicant's specification indicates that the service discovery protocol allows a customer premise device to communicate with an intermediate device, the intermediate device queries other intermediate devices in the public network to discover other customer premise devices sharing the same service related characteristics, and the customer premise device automatically configures itself as a member of the shared service. The Applicant's specification goes into great detail about the communications exchanged among the various devices to discover the other customer premise devices and the configuration of the customer premise device upon receiving the information. Applicant therefore respectfully requests withdrawal of this rejection.

Claim Rejections Under 35 U.S.C. § 102

In the Office Action, the Examiner rejected claims 1-43 under 35 U.S.C. § 102(e) as being anticipated by Sarkar et al. (US 7,272,643, "Sarkar") and rejected claims 1, 14, 18, 23, 30 and 37 under 35 U.S.C. § 102(e) as being anticipated by Lo (US 7,111,054). Applicant respectfully traverses the rejections to the extent such rejections may be considered applicable to the amended claims. The references fail to disclose each and every feature of the claimed invention, as required by 35 U.S.C. § 102(e), and provide no teaching that would have suggested the desirability of modification to include such features.

Claims 1-43 and Sarkar reference

With respect to independent claim 1, for example, the Examiner indicated that Sarkar's profile-based routing configuration anticipates the requirements of Applicant's claims. In response, Applicant has amended claim 1 to further clarify the differences between the claimed invention and Sarkar.

Sarkar describes techniques for managing and provisioning virtual private networks (VPNs) and Virtual Routers (VRs) within a service processing switch.² As illustrated in FIG. 1

² Sarkar, column 3, lines 43-47.

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of Sarkar, the service processing switch 110 is coupled to a service provider network 116 and one or more customer networks 102 via customer site routers 104.³ Sarkar describes techniques for configuring the service processing switch 110 to function as a VR for one or more of the customer networks 102 coupled to switch 110.⁴ To configure itself, service processing switch 110 learns routes to sites to which it is connected. Additionally, the service processing switch 110 disseminates site reachability information (which the Examiner characterized as communicating service related characteristics).⁵ For example, lookup in a centralized directory is used to retrieve the site reachability information.⁶ In particular, the switch 110 can query a central directory server to obtain identities of edge routers associated with a VPN, and the set of customer site links bound to the VPN per edge router.⁷

Additionally, the switch 110 obtains one or more VPN profiles (e.g., a global routing profile, a customer site profile, and/or an OSPF profile) associated with the customer for which the VPN is being configured.⁸ A service provider managing a service processing switch 110 can create various service policies which are used in defining VPN profiles used to generate tunnels, routing, and other service configurations for the VPNs.⁹ Service management system 118 (FIG. 1 of Sarkar) uses VPN profile data and the site reachability information to automatically generate the required VPN configuration to operate switch 110 as a VR of the VPN for the customer site network.¹⁰

Sarkar fails to disclose or suggest the requirements of Applicant's claims. For example, Applicant's independent claim 1, as amended, requires executing a service discovery protocol on a first customer premise device of a customer site network to communicate service related characteristics associated with the a first customer premise device from the first customer premise device to a first public router of a service provider network, where the service related characteristics include information corresponding to a shared service provided by a service provider and in response to receiving the service related characteristics at the first public router

³ Sarkar, column 4, lines 11-17.

⁴ Sarkar, Abstract.

⁵ Sarkar, col. 7, lines 6-12.

⁶ Sarkar, col. 8, lines 7-16.

⁷ *Id.*

⁸ Sarkar, col. 8, lines 62-67 and col. 9, lines 1-53.

⁹ *Id.* at column 4, lines 43-54.

¹⁰ *Id.* at column 10, lines 11-15.

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of the service provider network, executing the service discovery protocol on the first public router to issue a plurality of queries to a plurality of other public routers of the service provider network to request identification information that identifies any other customer premise devices that are connected to those other public routers and that share the same service related characteristics as the first customer premise device. Claim 1 also requires in response to the queries, executing the service discovery protocol on the first public router to receive the identification information from at least two different ones of the other public routers of the service provider network, the information identifying the customer premise devices that are connected to the at least two different public routers and that share the same service related characteristics as the first customer premise device, executing the service discover protocol to communicate from the first public router to the first customer premise device the identification information obtained about the other customer premise devices that share the service related characteristics, and configuring the first customer premise device in accordance with the service related characteristics and the information obtained about the other customer premise devices to join the first customer premise device to the shared service.

Applicant's claim 1 specifically requires that all devices, including the customer premise device and all of the public routers, directly communicate using the service discovery protocol. That is, the same service discovery protocol is executed by the first customer premise device to provide service characteristics to the first public router to which it is connected. That same service discovery protocol is then executed by the first public router to issue queries directly to other public routers and receive responses from those routers information that identifies any other customer premise devices that are connected to those other public routers and that share the same service related characteristics as the first customer premise device. Finally, the first public router uses the same service discovery protocol again to communicate the identification information to the customer premise device being connected. In this way, a single protocol can be used to seamlessly discover and exchange information directly between all of the devices. Sarkar fails to disclose or suggest using the same protocol to directly communicate such information among all the devices.

In fact, Sarkar does not even disclose or suggest querying, with the first public router, a plurality of other public routers of the service provider network to obtain information about other

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customer premise devices that share the same service related characteristics as the first customer premise device. As describe above, switch 110 of Sarkar may query a centralized directory server to obtain identities of edge routers associated with a VPN, and the set of customer site links bound to the VPN per edge router.¹¹ Thus, Sarkar queries a single device to obtain the information. This is different than Applicant's claims, which require that the first public router query a plurality of other public routers of the service provider network to obtain information about other customer premise devices. Thus, Applicant's claim 1 as amended eliminates the need to maintain such a centralized directory, but instead query each of the other public routers individually. Sarkar makes no mention whatsoever of querying a plurality of other public routers of the service provider network to obtain information about other customer premise devices that share the same service related characteristics as the first customer premise device.

Sarkar also fails to disclose or suggest communicating the information obtained about the other customer premise devices that share the service related characteristics from the first public router to the first customer premise device. The information obtained by the switch 110 in Sarkar (e.g., the routing profiles) are not relayed on to customer routers 104 for use in configuring customer router 104 to join the shared service. Instead, switch 110 uses the information to configure itself, i.e., a public device of the service provider network, to join the shared service. This is different than Applicant's claim 1 as amended, which requires that the information obtained by the public router about the other customer premise devices be provided to the customer premise device for configuring the customer premise device. To the contrary, the obtained information is used to configure the service provider device (i.e., the public device). Therefore, Sarkar fails to teach or suggest the requirements of Applicant's claim 1 as amended, for at least the reasons described above.

Sarkar also fails to disclose or suggest the requirements of Applicant's other independent claims. For example, Sarkar fails to teach or suggest receiving, with a first public router of a service provider network, a communication from a first customer premise device of a customer site network that includes service related characteristics are associated with the first customer premise and correspond to a shared service provided by a service provider of the service provider network, querying, with the first public router, a plurality of other public routers to obtain

¹¹ Sarkar, col. 8, lines 7-16.

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information about at least one other customer premise device that shares the same service related characteristics as the first customer premise device and communicating the discovered information about the at least one other customer premise device to the first customer premise device, as required by Applicant's claim 14 as amended.

As described above, Sarkar fails to describe querying a plurality of other public routers of the service provider network to obtain information about other customer premise devices that share the same service related characteristics as the first customer premise device, as required by Applicant's claim 14 as amended. To the extent Sarkar describes any type of querying, switch 110 of Sarkar queries a single centralized directory, not a plurality of public routers.¹² Sarkar also fails to disclose or suggest communicating the discovered information about the at least one other customer premise device to the first customer premise device, as further required by Applicant's claim 14 as amended. The information obtained by the switch 110 in Sarkar (e.g., the routing profiles) is not relayed on to customer routers 104. To the contrary, switch 110 uses the information to configure itself to join the shared service and act as a VR. Therefore, Sarkar fails to disclose or suggest the requirements of Applicant's claim 14. For at least these reasons, Sarkar also fails to anticipate the requirements independent claims 18 and 37.

As another example, Sarkar fails to teach or suggest a customer premise device that includes a communication manager that communicates service related characteristics associated with the customer premise device to a first public router of a service provider network and receives information about at least one other customer premise device that shares the service related characteristics from the first public router, wherein the information about the at least one other customer device is obtained by the first public router by querying a plurality of other public routers of the service provider network and a service manager that configures the customer premise device in accordance with the service related characteristics and the information obtained about the other customer premise devices to join the customer premise device to a shared service, as required by Applicant's independent claim 30.

As described above, Sarkar fails to disclose or suggest receives information about at least one other customer premise device that shares the service related characteristics from the first public router, wherein the information about the at least one other customer device is obtained by

¹² Sarkar, col. 8, lines 7-16.

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the first public router by querying a plurality of other public routers of the service provider network. First, the information obtained by the switch 110 in Sarkar (e.g., the routing profiles) is not relayed on to customer routers 104 or any other customer premise device. To the contrary, switch 110 (i.e., a public device belonging to the service providers) uses the information to configure itself to join the shared service and act as a VR. Moreover, switch 110 of Sarkar does not obtain the information about the at least one other customer device by the first public router by querying a plurality of other public routers of the service provider network. To the extent Sarkar describes any type of querying to obtain the information, switch 110 of Sarkar queries a single centralized directory, not a plurality of public routers.¹³

Additionally, Sarkar fails to disclose or suggest configures the customer premise device in accordance with the service related characteristics and the information obtained about the other customer premise devices to join the customer premise device to a shared service, as further required by Applicant's independent claim 30. To the contrary, switch 110 (public device of service provider network) uses the information to configure itself to join the shared service. This is different than Applicant's claim 30 as amended, which requires that the information obtained by the public router about the other customer premise devices be provided to the customer premise device for configuring the customer premise device. Sarkar fails to disclose or suggest configuring of the customer premise router 106 using the information obtained from the query. Therefore, Sarkar fails to disclose or suggest the requirements of Applicant's claim 30. For at least the reasons, Sarkar also fails to anticipate the requirements of Applicant's new claim 59.

Applicant respectfully requests withdrawal of the rejection of claims 1-43 for the reasons set forth above.

Claims 1, 14, 18, 23, 30 and 37 and Lo reference

In the Office Action, the Examiner indicated that Lo's customer premise equipment auto configuration techniques anticipate the requirements of Applicant's claims. In this Amendment, Applicant's claims have been amended. Lo fails to anticipate Applicant's claims as amended.

¹³ Sarkar, col. 8, lines 7-16.

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Lo describes auto configuration techniques in which a customer premise device sends a discover packet that includes a set of configuration values of the customer premise device to a network access device.¹⁴ The customer premise device of Lo waits a certain period of time for a response, and if no response is received, the customer premise device resends a discover packet with a new set of the configuration values.¹⁵ Lo continues to transmit discover packets until either a response is received or no more configuration values exist to include in the discover packet.¹⁶ When a response is received from the network access device, the customer premise device configures itself in accordance with the configuration information provided in the response packet.¹⁷

Lo fails to teach or suggest the requirements of Applicant's claims, as amended. For example, Applicant's independent claim 1, as amended, requires executing a service discovery protocol on a first customer premise device of a customer site network to communicate service related characteristics associated with the a first customer premise device from the first customer premise device to a first public router of a service provider network, where the service related characteristics include information corresponding to a shared service provided by a service provider and in response to receiving the service related characteristics at the first public router of the service provider network, executing the service discovery protocol on the first public router to issue a plurality of queries to a plurality of other public routers of the service provider network to request identification information that identifies any other customer premise devices that are connected to those other public routers and that share the same service related characteristics as the first customer premise device. Claim 1 also requires in response to the queries, executing the service discovery protocol on the first public router to receive the identification information from at least two different ones of the other public routers of the service provider network, the information identifying the customer premise devices that are connected to the at least two different public routers and that share the same service related characteristics as the first customer premise device, executing the service discover protocol to communicate from the first public router to the first customer premise device the identification

¹⁴ Lo, column 4, lines 40-54.

¹⁵ *Id.* at col. 4, lines 55-67.

¹⁶ *Id.*

¹⁷ *Id.*

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information obtained about the other customer premise devices that share the service related characteristics, and configuring the first customer premise device in accordance with the service related characteristics and the information obtained about the other customer premise devices to join the first customer premise device to the shared service.

Applicant's claim 1 specifically requires that all devices, including the customer premise device and all of the public routers, directly communicate using the service discovery protocol. That is, the same service discovery protocol is executed by the first customer premise device to provide service characteristics to the first public router to which it is connected. That same service discovery protocol is then executed by the first public router to issue queries directly to other public routers and receive responses from those routers information that identifies any other customer premise devices that are connected to those other public routers and that share the same service related characteristics as the first customer premise device. Finally, the first public router uses the same service discovery protocol again to communicate the identification information to the customer premise device being connected. In this way, a single protocol can be used to seamlessly discover and exchange information directly between all of the devices. Lo fails to disclose or suggest using the same protocol to directly communicate such information among all the devices.

In fact, Lo fails to even disclose or suggest querying, with the first public router, a plurality of other public routers of the service provider network to obtain information about other customer premise devices that share the same service related characteristics as the first customer premise device. Lo describes operation of the customer premise device, i.e., the broadband modem. Lo fails to describe operation of the access device at all and certainly does not describe the access device querying other access devices to obtain information about other customer premise devices that share the same service related characteristics as the first customer premise device.

Lo also fails to disclose or suggest the configuration values included in the discover packet include information corresponding to a shared service provided by a service provider and configuring the customer premise device in accordance with the service related characteristics and the information obtained about the other customer premise devices to join the first customer premise device to the shared service, as required by Applicant's claim 1 as amended. Instead, Lo

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is directed to configuring the customer premise device (e.g., a broadband modem) to establish a connection to a broadband network. To establish such a connection there is no need to know information about other customer premise devices that have access to the broadband network. Therefore, Lo fails to teach or suggest the requirements of Applicant's claim 1.

Lo fails to disclose or suggest the requirements of Applicant's other independent claims. For example, Lo fails to teach or suggest receiving, with a first public router of a service provider network, a communication from a first customer premise device of a customer site network that includes service related characteristics are associated with the first customer premise and correspond to a shared service provided by a service provider of the service provider network, querying, with the first public router, a plurality of other public routers to obtain information about at least one other customer premise device that shares the same service related characteristics as the first customer premise device and communicating the discovered information about the at least one other customer premise device to the first customer premise device, as required by Applicant's claim 14 as amended. As described above, Lo fails to describe operation of the access device at all and certainly does not describe the access device querying other access devices to obtain information about other customer premise devices that share the same service related characteristics as the first customer premise device. For at least these reasons, Lo also fails to anticipate the requirements independent claims 18 and 37.

As another example, Lo fails to teach or suggest a customer premised device that includes a communication manager that communicates service related characteristics associated with the customer premise device to a first public router of a service provider network and receives information about at least one other customer premise device that shares the service related characteristics from the first public router, wherein the information about the at least one other customer device is obtained by the first public router by querying a plurality of other public routers of the service provider network and a service manager that configures the customer premise device in accordance with the service related characteristics and the information obtained about the other customer premise devices to join the customer premise device to a shared service, as required by Applicant's independent claim 30.

As described above, Lo fails to describe operation of the access device at all and certainly does not describe the access device querying other access devices to obtain information about

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other customer premise devices that share the same service related characteristics as the first customer premise device. Moreover, Lo is directed to configuring the customer premise device (e.g., a broadband modem) to establish a connection to a broadband network. To establish such a connection there is no need to know information about other customer premise devices that have access to the broadband network. Therefore, Lo fails to teach or suggest the requirements of Applicant's claim 30. For at least the reasons described above with respect to claim 30, Lo fails to anticipate the requirements of Applicant's new claim 59.

For at least these reasons, Lo fails to anticipate the requirements of Applicant's claims 1, 14, 18, 23, 30 and 37. Applicant respectfully requests withdrawal of this rejection.

New Claims

Applicant has added claims 44-61 to the pending application. The applied references fail to disclose or suggest the inventions defined by Applicant's new claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed inventions. No new matter has been added by the new claims.

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CONCLUSION

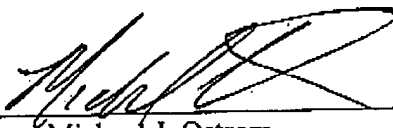
In the foregoing remarks, Applicant has focused on the requirements of the independent claims for purposes of conciseness. In so doing, Applicant in no way admits or acquiesces in the propriety of the Office Action in regard to interpretation of the prior art or any of the additional limitations set forth in the various claims, including the limitations of the dependent claims.

All claims in this application are in condition for allowance. Applicant respectfully requests reconsideration and prompt allowance of all pending claims. Please charge any additional fees or credit any overpayment to deposit account number 50-1778. The Examiner is invited to telephone the below-signed attorney to discuss this application.

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February 21, 2008
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